

Schweig (G. M.)

# CEREBRAL EXHAUSTION

WITH SPECIAL REFERENCE TO ITS

## GALVANO-BALNEOLOGICAL TREATMENT

BY

✓  
GEORGE M. SCHWEIG, M. D.

MEMBER OF THE NEW YORK COUNTY MEDICAL SOCIETY AND OF  
THE MEDICAL JOURNAL ASSOCIATION OF THE CITY OF  
NEW YORK; ONE OF THE PHYSICIANS TO THE  
NEW YORK LYING-IN ASYLUM, ETC., ETC.

*n. y.*  
From "THE MEDICAL RECORD" of November 4th 1876



New York

COSMOPOLITAN PRINTING OFFICE

11 SPRUCE STREET



# CEREBRAL EXHAUSTION

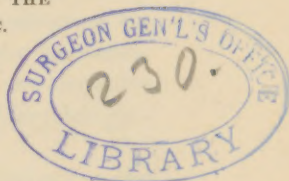
WITH SPECIAL REFERENCE TO ITS

## GALVANO-BALNEOLOGICAL TREATMENT

BY

✓  
GEORGE M. SCHWEIG, M. D.

MEMBER OF THE NEW YORK COUNTY MEDICAL SOCIETY AND OF  
THE MEDICAL JOURNAL ASSOCIATION OF THE CITY OF  
NEW YORK; ONE OF THE PHYSICIANS TO THE  
NEW YORK LYING-IN ASYLUM, ETC., ETC.



---

*From "THE MEDICAL RECORD" of November 4th 1876*

---

**New York**

COSMOPOLITAN PRINTING OFFICE

11 SPRUCE STREET





## CEREBRAL EXHAUSTION.

WITH SPECIAL REFERENCE TO ITS GALVANO-BALNEOLOGICAL  
TREATMENT.

BY GEORGE M. SCHWEIG, M. D.

New York.

(Read before the "Medical Journal Association," Oct. 20, 1876.)

---

*Neurasthenia*, or "nervous exhaustion, is a very comprehensive term, which may apply to the cerebral, spinal or sympathetic nervous system, or to any or all of these combined. Indeed, although referable primarily to one or other of them, the affection rarely advances far without one or both of the sister-systems becoming involved—a very natural sequence, when we consider their close relations, anatomically as well as physiologically.

I propose in the present paper to limit myself to the form that involves primarily the brain, and which may aptly be termed *cerebral neurasthenia* or *exhaustion*.

Let us glance briefly at the etiology, pathology and symptomatology of this affection, and we will then be prepared to proceed more intelligently to the discussion of a rational treatment.

Of *causes*, we have the predisposing and the direct. The *chief* predisposing cause may be sought in a mind that lacks stamina, or staying power. As a feeble

muscle succumbs readily to continued trying activity, a thus feeble mind, be it otherwise never so clear, or even brilliant, will yield prematurely to long-continued deep thought or hard study. The inherited *neuropathic diathesis* is no doubt an important factor in the genesis of the disease. As may be readily inferred from the nature of their avocations, physicians, lawyers, inventors, etc., furnish proportionately the largest contingent to this class of patients. So far as my own observations go, the disease occurs almost exclusively in the middle-aged, the young and the old being comparatively exempt.

A word in regard to the influence of *sex*. Although occurring almost exclusively in the male, I do not believe that therefore the female is less predisposed to this affection. It seems to me, on the contrary, that this disproportion is owing alone to the circumstance that, in the present order of things throughout the civilized world, man does the hard brain-work, the proportion of females who devote themselves to the learned professions or other pursuits requiring mental exertion, being too inconsiderable to deserve more than passing mention. This, I admit, is of late becoming less so than it formerly was; but I contend also, that when women shall come to furnish a numerically respectable quota to the professions that demand intellectual work, they will then also furnish their proportion, or more than this, of cases of cerebral exhaustion.

The main direct cause of cerebral neurasthenia is simply "abuse of the mental faculties." As is the case with many other organs, the mind can be over-fatigued, again and again, until finally prostration, more or less complete and permanent, supervenes. In quite a num-

ber of instances, however, we have a *supplementary* cause in collateral influences on the mind, in the shape of depressing emotions and thoughts resulting from family or business troubles, sickness, etc., that render this organ less competent to bear up under taxations that, under ordinary circumstances, it might have sustained with impunity.

With respect to *pathology*, little is to be said. We know that primarily the disease is merely functional; observation, however, teaches that it is frequently the predecessor of so-called "idiopathic cerebral softening." Whether in such instances the cerebral neurasthenia is merely the initiatory symptom of the softening, or the cause of this, is for the present an open question. Theoretically, we may assume that in cerebral exhaustion a foundation for organic changes has been laid by the repeated hyperæmiæ superinduced by the increased afflux of blood which, physiology teaches us, must have accompanied each separate mental strain. In a considerable proportion of the cases, these passing active hyperæmiæ lead to a permanent and more or less intense passive hyperæmia, due directly to oft-repeated over-dilatation of the capillaries.

The absence in cerebral exhaustion of any uniform anatomical change or lesion, compels us to cast our eyes in another direction. Of all theories as to the pathology, none appears to me more likely or reasonable than that of *nutritive changes*; indeed, I can think of no other. The nature of these changes is matter for the future histologist.

Before leaving the subject of pathology, it appears to me appropriate to cite a few words from PROFESSOR



ERB,\* treating of a kindred subject—"Spinal Neurasthenia." Speaking of the nature of that affection, he says: "It appears most natural that we have to do here with *subtile nutritive changes* in the spinal cord, which we are compelled for the present to assume in so many diseases of the nervous system. . . . We possess as yet no knowledge whatever in regard to the nature of the nutritive changes that take place here. . . . The theory that appears to me more reasonable than any other, is that we have to do with an enhancement and fixation of the physiological "fatigue" of the nerve elements, that always follows severe and protracted irritation. In such pathological cases, then, we have only to suppose that this fatigue is not compensated rapidly and promptly, as is the rule under physiological conditions."

The *symptoms* that may follow in the train of cerebral exhaustion are so manifold and varied, that to treat of them in detail would be entirely beyond the limits of the present paper. I shall therefore confine myself to the more prominent and constant of them.

As a rule, the first symptom noticed by the patient is a disinclination for mental labor. If this feeling be for the time overcome, and an attempt made to perform brain work, a comparatively brief application will suffice to exhaust the power of thought, and bring on confusion of ideas. The mind has lost its staying-power. In some cases the memory is enfeebled, in others it remains quite unaffected. To these purely mental symptoms, certain physical ones are soon superadded.

---

\* Ziemssen, Hand-Book of Special Pathology and Therapeutics ; Vo. XI., Part II., p. 378.



*Agrypnia* is a very common concomitant from the beginning. Of regional morbid phenomena, those within the sphere of the pneumogastric nerve take precedence, both as to the priority and importance, over all others. Among them may be classed : Disturbances of the heart's action, the functions of the stomach, liver, intestinal canal, etc. Vasomotor disturbances are common. Cerebral nerves other than the pneumogastric may in turn become involved. Thus we often have here neuralgiæ of varied form and intensity. At first located in some of the cranial nervous ramifications, these appear frequently within the sphere of the sympathetic and spinal nervous systems, and may then be classed as secondary phenomena.

I have never observed paralysis, although one patient told me that in the beginning of his trouble, which was some six years before I saw him, he had several attacks of hemiplegia without loss of consciousness, from which he made a spontaneous recovery in less than twenty-four hours. At a later period he had another attack, this time accompanied by loss of consciousness. Paretic conditions, on the other hand, are the rule, although they rarely make their appearance until the disease has existed for some time.

Judging from symptoms pointing in that direction — such as vasomotor disturbances, regional pareses, neuralgiæ or paræsthesiæ, there can be no doubt that both the sympathetic system and spinal cord—especially its upper portion, become functionally involved after a shorter or longer period. From a local cerebral disturbance, if not checked in time, we thus see developed, more or less speedily, a general neurasthenia, with a tendency to organic and perhaps fatal lesions.

This mere glance at the nature and manifestations of cerebral exhaustion and its *sequelæ* is yet, I believe, sufficient to render apparent the necessity of instant and energetic treatment *as early as possible*, when we have still to contend with the primary condition alone. In addition to their aim to relieve the morbid condition itself, our therapeutic efforts become at this time even more important as a prophylactic against organic and perhaps incurable *sequelæ*.

The *diagnosis* of cerebral exhaustion in its first stage should present little difficulty; yet it is precisely here, where its recognition is of most importance, that mistakes in diagnosis most frequently occur. Where the trouble is looked upon as cerebral, the absence of unilateral symptoms, such as hemiparesis or hemiplegia, and other characteristic signs of special organic cerebral lesions, will usually suffice to stamp the trouble as functional, and, in conjunction with a just appreciation of the anamnesis and phenomena presented, lead to a recognition of its true nature.

It is not, however, in this direction that diagnostic errors are most frequent. Of the instances of mistaken diagnosis that have come under my notice, nearly all were in the direction of the abdominal viscera. The symptoms due to functional disturbance of the pneumogastric were looked upon as primary conditions. The stomach was often accused, but that scapegoat *par excellence*, the liver was generally held responsible for everything. The golden opportunity for a rapid and decisive therapy was thus often irretrievably lost, entailing much and prolonged suffering, that might have been obviated by a prompt, correct diagnosis and rational treatment.

In the more advanced stages, even where the neurasthenia has become general, or organic disease developed, the history of the case will, if minutely investigated, almost always throw light on the origin and primordial nature of the trouble.

The *prognosis* depends not only on the severity of the case, the duration of the cause and the hereditary disposition of the patient with respect to nervous disease, but also, and perhaps chiefly, on the patient's ability to lay aside all other considerations, and follow out strictly the course laid out for him by his medical attendant. Where this can be done unqualifiedly, a favorable prognosis is the rule.

We may now proceed to a consideration of the *treatment* of cerebral exhaustion. The one great object of a therapeutic course is patent; it is to seek, by *appropriate* tonization and physiological stimulation, in conjunction with the much-needed rest, to restore to the brain its lost vigor; to correct its impaired nutrition; in short, to bring it back to a normal state.

To effect this, it is of the utmost importance that no time should be wasted with tonic measures that exercise but little if any *immediate* influence on the brain. In view of the important share that prophylaxis bears in the indications for treatment, great circumspection is requisite in order to choose such remedies as are best calculated to insure *speedy* results. I will now proceed to describe the treatment which of all others has rendered me the best services.

The very first condition for treatment, the *sine qua non*, is "rest for the exhausted brain;" not a brief rest of days, nor even weeks, but absolute abstinence from



all mental tasks throughout the entire treatment, and until health is perfectly restored. Unless this can be absolutely complied with, other measures are useless, or nearly so. It will be well if at the same time all disagreeable emotions, cares, or harassing thoughts of any kind can be avoided. This, I know, is not always possible, but should be carried out as fully as circumstances will allow.

Of remedial agents, I have found galvanism to surpass in efficiency all others. At a first glance, it would seem as though the objects to be attained by this could be best realized through *direct* galvanization of the brain. This, however, is impracticable. A direct current of sufficient intensity to influence the brain, would prove injurious on the principle that enfeebled organs will not bear *strong* stimulation. Moreover, we cannot with the utmost care prevent the occurrence at times, during galvanization of the brain, of giddiness, ocular flashes, faintness, etc.—all undesirable phenomena, to be avoided in the electrical treatment of functional enfeeblement of the brain. If, on the other hand, we employ a current so feeble that occurrences such as those enumerated become impossible, or at least very remote, and that *strong* stimulation is out of the question, it becomes very questionable, to say the least, whether a current reaches the brain at all; and if yes, it will be too insignificant to accomplish any therapeutic results. My own experience, then, with galvanization of the brain, has long since led me to abandon it in the initial treatment of cases of enfeeblement of that organ.

The manner in which ~~seek~~ <sup>seek</sup> I here to affect the brain is by *general* galvanization, administered in its *only*

*perfect form*—the GALVANIC BATH. By its means the brain is made to sustain a reflex or indirect influence from *all* points of the periphery, and at the same time, through derived currents, a mild direct impression, which can be regulated at will, not only by modifying the intensity of the current, but also by establishing more or less perfect communication between the occiput and the water of the bath. This direct influence differs from ordinary cerebral galvanization, whether bipolar or unipolar, in that here no electrode is applied directly to the cranium, which during the entire process is never for a moment in a direct line between the two poles of the battery. It is *never* attended with any of the undesirable phenomena enumerated above as not always avoidable in local galvanization. There are, indeed, no subjective sensations during the bath to indicate that the brain is being acted on at all. Nevertheless, an interruption or reversal of the current will promptly produce the galvanic taste, and, if the current has sufficient tension ocular flashes, etc., thus establishing beyond doubt the fact that the cranial nerves, *resp.* the brain, participate fully in the galvanic influence. The galvanic bath, then, of appropriate intensity for each individual case and stage, I look upon as the most valuable of all remedies we possess for the treatment of cerebral exhaustion. Bringing, at one and the same time, a suitably modified unipolar direct current and a reflex stimulus from every point of the periphery to bear on the brain, it stands unique among electro-therapeutic procedures. It not only furnishes to the brain tone and the much-needed physiological stimulation that tend to enhance its nutrition, but, through its invigorating influence on this organ,

allays the irritability that is so frequent a concomitant of debility, and thus becomes a sedative, and most efficient hypnotic. Its stimulating influence on the vasomotor system, together with its counter-irritant action on the skin, render the galvanic bath a very superior, if not the best equalizer of the circulation that we possess, causing it thus to exercise a further beneficial influence on the suffering brain by unloading its surcharged bloodvessels.

In addition to these *direct therapeutic* effects of the galvano-electric bath, this becomes, where the faradic current is added, a means for symptomatic and also prophylactic treatment, more universally applicable and useful than any other single remedy. Of its hypnotic properties, as well as its influence on the circulation, I have already spoken, and in both these respects it does all that can be expected or desired for any agrypnia or vasomotor disturbances that may be present. The well-known anti-neuralgic properties of the galvanic current render it also an efficient corrective for any intercurrent neuralgiæ. The circumstance that in the bath no organ in the body is exempt from the electric influence, is of great importance in the treatment of functional disturbances of the important organs that are innervated by the pneumogastric and sympathetic nerves. Thus, dyspeptic symptoms, hepatic torpor, irregular cardiac action, morbid modifications of the alvine process, etc., are as a rule rapidly ameliorated.

Thus far I have considered the effects of the galvanic current alone. The faradic current, however, may likewise be employed with great advantage, chiefly in the treatment and for the prophylaxis of paretic conditions. Passive muscular contractions of any group or groups of



muscles can be obtained in the faradic bath with great nicety, both as to locality and energy of contraction. The importance of this will be readily conceded. Nor is its influence on paresis the sole benefit to be derived from the faradic current. By the very muscular contractions thus evoked, capillary stases are relieved, and a mighty auxiliary is thus furnished the galvanic current in its effects on the circulation.

On the whole, then, the electric bath meets all the indications of the disease but one, viz.: special nourishment for the brain. In addition to an appropriate diet, this may be best supplied by the exhibition of either phosphorus or cod-liver oil, or both, according to indications in individual cases. The phosphorus may be given pure (in pill or solution) or as phosphide of zinc. Where electricity is employed, I consider medicinal stimulants superfluous; nor, with one exception, do I know of any other remedial agents, in addition to those enumerated, from which special benefit might be expected. The exception I allude to is the bromides. These may be advantageously given in cases that are characterized by irritability so intense or cerebral hyperæmia so decided as to indicate the employment of some additional remedy to combat these special conditions.

As for further symptomatic treatment other than that furnished by the electric bath, such may become necessary, and must be determined as occasion arises, according to the best judgment of the practitioner.

A few words as to the mode of administration of the baths in the treatment of cerebral neurasthenia. It is impossible in this respect to lay down any routine formula, either in regard to the duration of the bath, the

temperature of the water, or the intensity or direction of the current. Each case has its own laws. A few general suggestions may nevertheless be not out of place.

Very mild currents should be employed in the beginning. As recuperation advances, stronger currents may be gradually introduced. The intensity of the currents should be carefully regulated to keep pace with the gradually increasing capacity of the various organs to respond to the electric stimulus without detriment. Both currents may be used from the first, although the faradic current is strictly necessary only where parietic or sub-paralytic conditions exist. The galvanic should precede the faradic current, and be employed for not more than ten minutes. Where irritability is a feature of the case, the current should be descending—otherwise ascending. This may be followed by the faradic current, not of sufficient intensity for the first few baths, however, to cause any but *slight* muscular contractions. In most of the cases iron may be advantageously added to the bath. The duration of the baths should at first not exceed fifteen minutes; in some cases this even is too long, the patient complaining of being fatigued perhaps after the lapse of ten minutes. Where this is the case, the bath should be at once terminated. It is, in these cases, not the electric current, but the warm-water bath, that gives rise to the sense of fatigue. Later on in the treatment, the duration of the baths may be from twenty to twenty-five minutes, according to indications.

The practitioner who is familiar with the physiological and therapeutic effects of electricity, will readily grasp the requirements of individual cases; while he who has not given attention to the subject, will either

have to abandon the méthode, or relegate its application to some colleague who possesses the necessary information.

The clinical tableau presented by cerebral exhaustion is so variable, that to introduce here a clinical record of one or two cases only would serve no purpose. As my limits therefore do not admit of the introduction of a sufficient number of cases, I must for the present refrain from a clinical consideration of the subject.

NEW YORK,

160 SECOND AVENUE.









